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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Leslie Raymond Bates

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EXAMINER

PARSLEY, DAVID J

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/574,999	Applicant(s) BATES ET AL.	
	Examiner DAVID J. PARSLEY	Art Unit 3643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8-21-06, 1-14-09</u> . | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

Preliminary Amendment

1. Entry of applicant's preliminary amendment dated 4-7-06 into the application file is acknowledged.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

3. Claim 6 is objected to because of the following informalities: claim 6 does not end in a period. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claims 14-15, 17 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 17 recites the broad recitation of the thickness of the liner being from 1 to 10% of the liner diameter as seen in parent claim 16, and the claim also recites the thickness of the liner is from 1 to 5% of the liner diameter which is the narrower statement of the range/limitation.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is

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followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claims 14-15 recite the broad recitation of the particles having a diameter of 10 microns or less as seen in parent claim 13, and the claims also recite the particles either have a diameter of 1 micron or less (claim 14) or 0.1 microns or less (claim 15) which is the narrower statement of the range/limitation.

Claim 26 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 26 depends from claim 22 and claim 26 is written as if a perforating gun disclosed in claim 22 but there is no mention of a perforating gun in claim 22.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 13 and 19-27 are rejected under 35 U.S.C. 102(b) as being anticipated by

U.S. Patent No. 4,766,913 to Winter et al.

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Referring to claim 1, Winter et al. discloses a reactive shaped charge liner comprising a stoichiometric composition of two metals whereby the liner is capable in operation of an exothermic reaction upon activation of an associated shaped charge and in which the two metals are provided in respective proportions calculated to give an electron concentration of 1.5 - see figure 1 and column 3 lines 20-45.

Referring to claim 2, Winter et al. further discloses one of the metals is aluminum – see column 3 lines 20-45.

Referring to claim 3, Winter et al. further discloses one of the metals is selected from nickel and palladium - see column 3 lines 20-45.

Referring to claim 4, Winter et al. further discloses the composition is a pressed particulate composition - see column 3 lines 20-45.

Referring to claim 13, Winter et al. further discloses the composition is particulate with the particles having a diameter of 10 microns or less - see column 4 lines 50-66.

Referring to claim 19, Winter et al. further discloses the composition further comprises at least one further metal, wherein the at least one further metal is not capable of exothermic reaction upon activation of the shaped charge liner - see column 3 lines 20-45.

Referring to claim 20, Winter et al. further discloses the at least one further metal is selected from copper, tungsten or an alloy thereof – see column 3 lines 20- 45.

Referring to claim 21, Winter et al. further discloses the device of claim 1 as a shaped charge perforator - see figure 1.

Referring to claim 22, Winter et al. further discloses a housing – at 12, a quantity of high explosive - at 14, located within the housing - see figure 1, and a liner - at 18,30-34, of claim 1,

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located within the housing - see figure 1, so that the high explosive is positioned between the liner and the housing - see figure 1.

Referring to claims 23-27, Winter et al. further discloses one or more shaped charges of claims 1 and 21. Winter et al. does not specifically disclose a perforator gun, but Winter et al. does disclose using shaped charges in a well boring application as seen in column 1 lines 10-25 and in a well boring application the use of shaped charges in a perforating gun is inherent in such an application.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-12, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winter et al. as applied to claim 1 above, and further in view of U.S. Patent No. 6,371,219 to Collins et al.

Referring to claims 5, 6 and 28, Winter et al. does not disclose a binder is added and/or coated on one of the metals to aid consolidation. Collins et al. does disclose a binder is added and/or coated on one of the metals to aid consolidation – see column 2 lines 50-67 and column 3 lines 1-15. Therefore it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. and add the binder of Collins et al., so as to allow for the metal particles to be securely held together during use.

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Referring to claim 7, Winter et al. as modified by Collins et al. further discloses the binder is a polymer - see column 2 lines 50-67 of Collins et al. Therefore it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. and add the binder of Collins et al., so as to allow for the metal particles to be securely held together during use.

Referring to claim 8, Winter et al. as modified by Collins et al. does not specifically disclose the polymer is a stearate, wax or epoxy resin. However, it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. as modified by Collins et al. and add the polymer binder being a stearate, wax or epoxy resin, so as to allow for the metal particles to be securely held together during use.

Referring to claim 9, Winter et al. as modified by Collins et al. further discloses the polymer is an energetic polymer – see column 2 lines 50-67 and column 3 lines 1-15 of Collins et al. Therefore it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. and add the binder of Collins et al., so as to allow for the metal particles to be securely held together during use.

Referring to claim 10, Winter et al. as modified by Collins et al. does not specifically disclose the energetic binder is selected from Polyglyn, GAP or Polynimmo. However, it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. as modified by Collins et al. and add the energetic binder being Polyglyn, GAP or Polynimmo, so as to allow for the device to be more destructive during use.

Referring to claim 11, Winter et al. as modified by Collins et al. does not specifically disclose the binder is selected from lithium stearate or zinc stearate. However, it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. as modified by

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Collins et al. and add the binder being lithium stearate or zinc stearate, so as to allow for the metal particles to be securely held together during use.

Referring to claim 12, Winter et al. as modified by Collins et al. does not specifically disclose the binder is present in the range of 0.1 to 5% by mass. However, it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. as modified by Collins et al. and add the binder being 0.1 to 5% by mass, so as to ensure that there is sufficient binder to hold the metal particles in place during use.

Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winter et al. as applied to claim 13 above.

Referring to claims 14 and 15, Winter et al. does not specifically disclose the composition has particles being 1 micron or less in diameter or .1 microns or less in diameter. However, it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. and add the particles being 1 or 0.1 microns or less, so as to allow for the particles to be easier to shape into the desired final product during manufacturing.

Referring to claims 16 and 17, Winter et al. does not specifically disclose the thickness of the liner is in the range of 1 to 10% or 1 to 5% the liner diameter. However, it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. and add the thickness of the liner being in the range of 1 to 10% or 1 to 5% the liner diameter, so as to allow for the device to be of sufficient size to be destructive during use.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Winter et al. as applied to claim 1 above, and further in view of U.S. Patent No. 3,235,005 to Delacour.

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Referring to claim 18, Winter et al. does not disclose the thickness of the liner is non-uniform across the surface area of the liner. Delacour does disclose the thickness of the liner is non-uniform across the surface area of the liner - see at 7 or 13 in figures 4 and 6. Therefore it would have been obvious to one of ordinary skill in the art to take the device of Winter et al. and add the non-uniform thickness of the liner of Delacour, so as to allow for the device to be more destructive during use.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to shaped charges and liners for shaped charges in general:

U.S. Pat. No. 6,012,392 to Norman et al. - shows shaped charge liner of metal

U.S. Pat. No. 6,021,714 to Grove et al. - shows shaped charge liner of metal

U.S. Pat. No. 6,446,558 to Peker et al. - shows shaped charge liner of metal

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID J. PARSLEY whose telephone number is (571)272-6890. The examiner can normally be reached on Monday-Friday from 8am to 4pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Poon can be reached on (571) 272-6891. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David J Parsley/
Primary Examiner, Art Unit 3643